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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/649,143	08/25/2000	Victor Kolesnik	076580.P011	9828

7590 05/06/2004

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EXAMINER	
KNEPPER, DAVID D	

ART UNIT	PAPER NUMBER
2654	5

DATE MAILED: 05/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/649,143	KOLESNIK ET AL.	
	Examiner	Art Unit	
	David D. Knepper	2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *IDS (paper #2) of 20 Nov 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4,6-13,15-17,19 and 20* is/are rejected.

7)☒ Claim(s) *2,5,14 and 18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *8/25/2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 2.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Applicant's correspondence filed on 20 November 2000 (IDS, paper #2) has been received and considered. Claims 1-20 are pending.

Title

2. The title is objected to because it does not accurately reflect the claimed invention.

Abstract

3. The Abstract of the Disclosure is objected to because the first sentence is redundant over other information in the abstract and should be deleted. Correction is required. See M.P.E.P. § 608.01(b).

Drawings

4. The drawings are objected to because "REFERENCE" is mis-spelled in figure 3, block 340. The "Searching Unit 401" is not labeled in figure 4 (text needs to be added in the box). Figures 5A-5C need to be labeled as "Prior Art" to correspond properly to the specification.

Correction is required.

Priority Claims

5. The applicant(s) should check their filing receipts and/or the Patent Application Information Retrieval (PAIR) system for the acknowledgment of their **domestic** priority or benefit claims (if any) under 35 USC 119(e), 120 or 121 (37 CFR 1.78).

Specification

6. The disclosure is objected to because of the following informalities:

On page 16, line 16, the reference to number "530" is in error regarding figure 7 and should be --730--.

Appropriate correction is required.

Claims

7. Claims 1, 3 and 7 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1: The "non-structured codebook" is not functionally connected to the other elements. Therefore, it is assumed that it is used the same way as in the prior art to store code vectors. Similarly, the "first quantizer" is presumed to generate some useful output that represents compressed audio such as a code book index as taught by the prior art.

Claim 3: The functional use of the "non-structured codebook" is not claimed similar to the lack of connection in claim 1. The "second quantizing unit" as lacks any specified output. Both are assumed to operate as taught by the prior art for storage and compression, respectively.

Claim 7: The claim fails to indicate how "predicted codewords" are generated thereby rendering them indistinguishable from standard codewords in so far as they are merely stored for use by a quantizer.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1, 3, 4, 6-13, 15-17, 19 and 20 are rejected under 35 U.S.C. § 103 as being unpatentable over Gersho ("Vector Quantization and Signal Compression") in view of LeBlanc ("Efficiant Search and Design Procedures for Robust Multi-Stage VQ of LPC Parameters fro 4 kb/s Speech Coding").

As per claim 1, "audio compression" is taught with his compression of various types of signals including speech (page 1, first paragraph):

"a searching unit having an input to receive a source vector and an output to provide a reduced version of a non-structured codebook" (Gersho teaches original source vectors with very high dimensionality is most efficient for VQ, page 461, section 12.13 and he calls the original vector a supervector (page 461, bottom) from which is extracted a new feature vector of reduced dimensionality, and when the feature vector is partitioned into subvectors and the basic scheme is again applied to each subvector a hierarchical VQ structure can be generated, page 461, bottom to page 462. He also teaches that unstructured hierarchical vector quantization (HVQ) is commonly used for the reduction of each feature vector, page 463 and figure 12.25, page 464)); and

"a first quantizer having a first input coupled to receive said source vector and coupled to said output of said searching unit" (Gersho teaches that the source could include audio input from a microphone, page 2, top – on page 4, Gersho explains that vector quantization ... is a mapping of real vectors (an ordered set of signal samples) into binary vectors using a minimum distortion rule.).

It is noted that Gersho does not explicitly use the term "searching". However, he teaches that it is common to use reduced complexity codebooks. LeBlanc teaches that it especially helpful to utilize more efficient search techniques to make a quantizer more robust (page 373, left column). It would have been obvious for a person having ordinary skill in the pertinent art, at the time the invention was made, to combine the improved search and design of LeBlanc with the teachings of Gersho because Gersho teaches that his reduction methods may be seen as a generalized version of multistage VQ (page 463, bottom) and LeBlanc's method is for improving Multi-Stage VQ, title.

Claims 3, 4, 7-9, 12, 16, 17, 19, 20: See claim 1 above. Using a second quantizer is suggested by the use of multistage VQ (see also figure 12.25, page 464 of Gersho).

Claims 6, 10, 11, 13, 15: Using "codewords closest to said source vector" is taught by Gersho's use of constraints such as the Nearest Neighbor Design, pages 360 and 361.

Claim 20: It is common practice to have a separate codebook for each stage of a multistage quantizer (see pages 452 and 453, including figures 12.20 and 12.21).

10. Claims 2, 5, 14 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art teaches non-structured codebooks with codewords broken into sets in a wide variety of configurations. However, the prior art does not teach the use of "overlapping sets". To the contrary, the prior art teaches voronoi regions and other sets so that each codeword would have a unique region.

Prior Art

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nishiguchi, Austin and Goldberg (5,765,127; 5,598,505; and 6,041,2970 are cited to show that various predictive forms of vector quantization are well known that divide codebook vectors into different codebooks to improve efficiency by sorting codes in different ways.

12. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

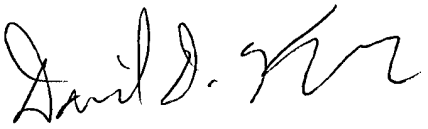
TC2600 Fax Center
(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Knepper whose telephone number is (703) 305-9644. The examiner can normally be reached on Monday-Thursday from 07:30 a.m.-6:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil, can be reached on (703) 305-9645.

Any inquiry of a general nature or relating to the status of this application should be directed to customer service whose telephone number is (703) 306-0377.



David D. Knepper
Primary Examiner
Art Unit 2654
May 3, 2004